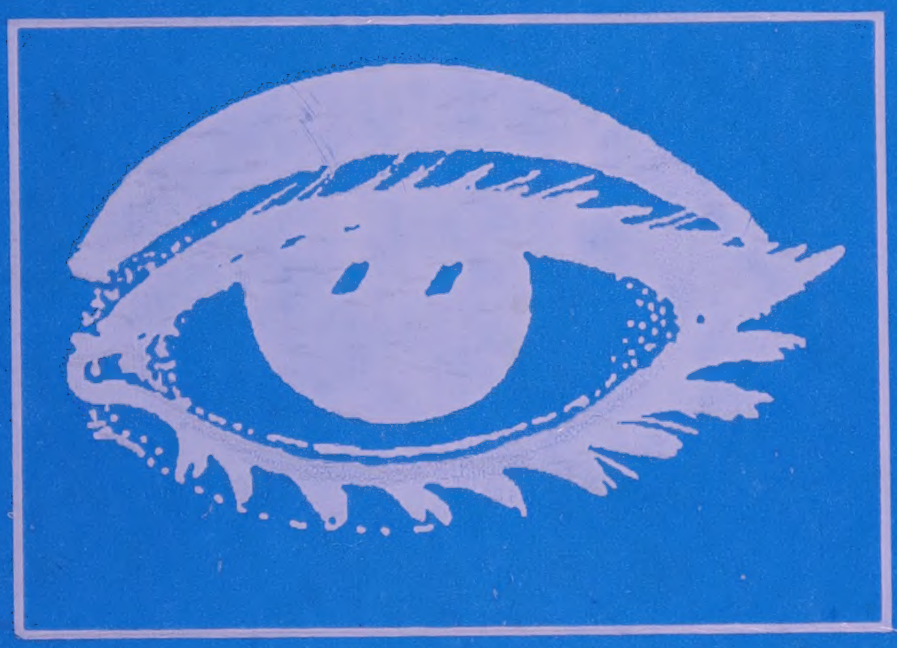
सत्यमेव जयते

BLINDNESS AND VISUAL IMPAIRMENT IN GUJARAT 1992



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FOREWORD

The problem of blindness is complex because of its gigantic size multiple causes, shortage of trained ophthalmic personnel and rural urban imbalance of the available scare resources. Lack of knowledge on the part of people towards self efforts to attain and maintain eye health, unaware of the disease and indifferent attitudes towards its treatment add further dimention to the problem.

The survey conducted by Government of India with the help of WHO during 1986-89 revealed the prevalence of blindness in Gujarat at 1.44%. Till then, Government of Gujarat is making all out efforts to reduce and control the blindness. It was felt necessary to conduct an independent survey covering all the districts of Gujarat with a sufficient sample size to measure the extent of blindness and general ocular morbidity in the State.

I am very happy that State Ophthalmic Cell took a lead and embarked upon a detailed survey on blindness and visual impairment in Gujarat during 1992. The present survey reveals a reduction in blindness in Gujarat.

I congratulate the State Ophthalmic Cell and all the officers involved in the survey, particularly, Dr. M.H. Shah, Retired Additional Director (V.S.) and Dr. M.Y. Khan, Joint Director (Ophthalmic Cell) who have been able

to produce such a detailed report focusing on magnitude of the blindness and general ocular morbidity in Gujarat. Not only this, the report also indicates different measures needed to be undetaken for controlling blindness within 3 to 5 years.

I am sure this report will prove very useful not only to the managers involved in control of blindness in Gujarat but also to other states.

Sd/-

(Smt. SUDHA ANCHLIA)
Commissioner of Health,
Medical Services & Medical Education
Gujarat

April 15, 1994

ACKNOWLEDGEMENTS

I am extremely thankful to Shri K. S. Sugathan, I.A.S., the then Commissioner, Health, Medical Services and Medical Education for provoking us to undertake this study. His timely guidance, prompt decision and help has resulted into the completion of this survey. I am very much thankful to Dr. M. H. Shah, Additional Director (V.S.) who was involved right from begining to the finalisation of the report. He has helped in analysis of data and drafting the report even after his retirement without whose help this report would not have seen the light of the day.

I am also thankful to Dr. P. J. Jhala Director, Computer Centre and his team Shri S. V. Chudasama, R.O. and Shri P. S. Dave, R.A. for helping us in computerising the survey data.

I am also thankful to all the District Programme Officers and Ophthalmic Assistants who actually conducted the survey.

My thanks are also due to the Shri V. D. Rathod, Shri K. T. Parikh, and Shri Hedamba for day-to-day routine work and Shri P. Sivaramkrishnan for steno typing.

My thanks are also due to all RDDs, CDHOs and CSs who helped us by providing vehicles and instructing MPWS to help the survey team.

I am thankful to Dr. K. C. Mehta, ADD (M) and Dr. N. D. Ghasura, ADD (H) and Dr. T. D. Gandhi ADD(H) who guided us from time to time.

My thanks are also due to Dr. S. K. Narang, Director, R.I. Ahmedabad, for helping in designing the schedule and for his expert opinion during the survey work.

My special thanks are due to Dr. C. N. Parikh, Programme Officer, Bharuch, who helped us in analysing cause specific data.

My thanks to DBCS Baroda & Palanpur for Financial help to print this report.

I am most thankful to our present Commissioner Smt. Sudhaben Anchlia, IAS, who constantly encouraged us in finalising and allowing us to publish the report.

Sd/-
(Dr. M.Y. KHAN)
Joint Director
State Ophthalmic Cell
GUJARAT

STATISTICS AT A GLANCE

Characteristic/Indicator		Prevalence Rate (%)	Percentage Distribution
1.	Blindness (<6/60)	1.16	
2.	Sex :		
	2.1 Male	0.93	
	2.2 Female	1.42	
3.	Rural/urbam		
	3.1 Rural	1.31	
	3.2 Urban	0.88	
4.	Religion		
	4.1 Hindu	1.20	
	4.2 Muslim	0.89	
5.	Caste		
	5.1 S.C. & S.T.	1.46	
	5.2 O.B.C.	1.10	
	5.3 Others	1.10	
6.	Age		
	6.1 Under 6 years	0.02	
	6.2 6-30 Years	0.06	
	6.3 31-60 Years	1.30	
	6.4 60+	13.05	
7.	Percentage Distribution by cause of blindness		
	7.1 Cataract		68.3
	7.2 Refractive error		10.0

Characteristic/Indicator		Prevalence Rate (%)	Percentage Distribution
7.3	Glaucoma		3.8
7.4	Trachoma		1.6
7.5	Corneal Opacity		5.7
7.6	Posterior segment		4.0
7.7	Injuries		0.7
7.8	Others		5.9
8.	Status of Visual Acuity		
8.1	Normal vision (6/6)	86.2	
8.2	Satisfactory vision (6/9 to 6/18)	8.68	
8.3	Impaired vision (6/24 to 6/60)	3.78	
9.	General Ocular morbidity		(Eyes)
9.1	Refractive error	10.83	46.7
9.2	Cataract	8.04	34.3
9.3	Trachoma	5.30	22.8
9.4	Vit. 'A' deficiency	1.65	7.1
9.5	Corneal opacity	0.43	1.9
9.6	Glaucoma	0.27	1.2
9.7	Others	0.56	2.7
10.	Magnitude of blindness		
10.1	Backlog of blind persons	5.04 lakhs	
10.2	Backlog of blind persons due to cataract	3.40 lakhs	
11.	Target of cataract Operations to be performed every year to complete the backlog by December 1998 (i.e. within next 5 years)	2.50 lakhs	

EXECUTIVE SUMMARY

The present survey reveals signficant reduction in prevalence of blindness (1.16%) as compared to the survey conducted during 1986-89 (1.44%) by Government of India, during about 5 year period in Gujarat.

In case of blindness, cataract is the leading cause accounting for 68.3% of the total cases. Refractive error is the second most common cause of blindness accounting for 10.0%. Corneal opacity (5.7%), Posterior segment (4.0%) and Glaucoma (3.8%) together account for 14%, while trachoma, injury and other causes account for remainder.

The survey has brought out sexwise, rural/urban and castewise differentials. Prevalence of blindness among females (1.42%) is found to be significantly higher than among males (0.93%). Rural areas indicate higher rate of prevalence of blindness (1.31%) than urban areas (0.88%).

Prevalence of blindness is high among Schedule Caste (SC) and Schedule Tribe (ST) (1.46%) as compaired to Other Backward Class (OBC) (1.10%) and Others (1.10%). Blindness was found to be closely associated with age, as age increases, prevalence of blindness also increases.

Prevalence of Normal vision (better eye 6/6) is 86.2%, while prevalence of Satisfactory vision (better eye vision 6/9 to 6/18) is 8.68%. Prevalence of Visual impairment (better eye vision 6/24 to 6/60) has been worked out to be 3.78% during current survey. Prevalence of visual impairment was also found to be closely associated with age, as age increase visual impairment also increases.

Prevalence of General ocular morbidity is 23.3%. cause specific general ocular morbidity indicates prevalence of refractive error at 10.84% and cataract at 8.09%.

Those who had ocular morbidity about 36% of them reported to have taken treatment. Those who have not taken treatment (37%) were "not at all aware of the disease" while about 57% reported that "they do not care for the treatment".

It has been estimated that Gujarat has backlog of about 5 lakh blind persons, out of which 3.4 lakh persons are blind due to cataract.

It has been suggested to prioritised control of blindness as under :

(i) To concentrate on operating blind persons particularly due to cataract.

(ii) To concentrate on unilateral blindness due to cataract and other cuases of bilateral and unilateral blindness due to trachoma, corneal opacity, preventive and curable posterior segment disease and refractive error.

It has been further recommended to arrange for house to house "Vision screening" campaign and to strengthen Eye health education component particularly in rural areas.

1 INTRODUCTION

It has been estimated that there are atleast 28 million blind in the world, if blindness is defined as inability to count fingures at a distance of 3 meters (less than 3/60, or its equivalent) which is the definition recommended by WHO. If the definition were fixed at a visual acuity of less than 6/60 a level recognised as "legal blindness" in some industrialised countries the world total of blind people would be about 42 million (1). Accroding to the latest NPCB-WHO Survey (1986-89), there are 12 million people blind in India (Vision less then 6/60) (2).

India is the first country in the world to launch Blindness Control Programme at the national level. First organised efforts towards backlog of blindness on national scale was undertaken by Government of India as early as in 1963 by launching National Programme for Trachoma Contorl. This programme was subsequently merged ino National Programme for Control of Visual Impairment and Prevention of Blindness, which in 1976 was redesignated as National Programme for Control of Blindness (NPCB).

2 NATIONAL PROGRAMME FOR CONTROL OF BLINDNESS IN GUJARAT

According to 1991 census, Gujarat is the 10th largest state in terms of population in the country having a total population of 41.31 million. This population constituted 4.9% of the total population of the country. The population of the State recorded growth rate of 20.8% during the decade 1981-91 as against 27.7% during 1971-81. The population growth rate in the State during 1981-91 was lower than the population growth rate of 23.6% of all India level. The Density of population has increased from 174 persons per sq.km in 1981 to 210 persons per sq. km in 1991.

Gujarat has sex ratio of 934 females per 1000 males as against 927 in the country as a whole as per 1991 census. In terms of literacy rate, Gujarat is the 5th ranked state in India with 60.9% literacy rate.

According to the Sample Registration System, Gujarat crude birth rate is 27.9 and crude death rate is 9.1 per 1000 population and infant mortality rate is 67 per 1000 live births in 1992.

There are 19 districts, 993 Primary Health Centres, 177 Community Health Centres and 7284 sub-centres in Gujarat.

National Progamme for control of Blindness was commissioned in 1978 in Gujarat State. At present under this programme following infra-structure facilities exist :

1	State Ophthalmic Cell	
2	Regional Institute of Ophthalmology, Ahmedabad	1
3	Central Mobile units	4
4	District Mobile units	7
5	Upgraded Medical colleges	2
6	Ophthalmic units in Dist. Hospitals	17
7	Upgraded PHCs.	250
8	Eye banks - Goverment	1
	Non Govt. organisation	4
9	District Blindness Control societies	18

Governmental efforts in control of blindness is supplemented by Voluntary organisations - Non-government organistion (NGOs). In Gujarat the NGOs are playing very vital role in control of blindness. They are actively involved in educational activities, preventive measures, rehabilitation as well as surgical services in the community for control of blindness in Gujarat. About 40% work of NPCB is being done by NGOs in Gujarat. NGOs are being provided financial assistance as per laid down conditions and guidelines by G.O.I.

3 MONITORING AND SUPERVISION

3.1 State level

Monitoring and supervision of NPCB is undertaken by the State Ophthalmic Cell. The State Ophthalmic cell is headed by a Joint Director in the commissionerate. Regular quarterly meetings of Programme officers (Oph. Surgeons) are conducted under the chairmanship of Comissioner with State programme officer including all additional directors of Health, Medical services, and Medical Education as well as heads of Ophthalimic departments of 3 medical colleges and Director Regional Institue to review the progress of NPCB activities. Problems faced by the district programme officers are discussed in detail in the meeting and major solutions are arrived at in consultation with state and district officers.

In addition to this Joint director (Ophthalmic) also visits the district hospitals as well as CHCs and PHCs for supervision purpose as well as discussing the field problems at various level. Joint Director also attend certain eye camps arranged by N.G.Os. NGOs meeting is also called twice a year by Joint Director under chairmanship of Commissioner. The aim is to provide help to NGOs at various levels for motivation and to solve their problems in carrying out the activities under NPCB.

State Ophthalmic Advisory Committee meeting under the Chairmanship of Hon. Health Minister is conducted once in a year.

3.2 Distirct level

At the district level, Ophthalmic Surgeon who has been designated as District programme officer for NPCB conducts regular monthly meetings of Ophthalmic Assistants at the district level and reviews the progress and sorts out the problmes faced by the Ophthalmic Assistants in the field. Activities like school eye health, eye health education in community, film show, posters, rollups used in group meeting, patients examined, no. of spectacles prescribed, cases of night blindness found, cataract cases newly registered and followup of post operative cases undertaken by PMOAs are being reviewed by district programme officers every month regularly.

4 TRAINING

To recruit Ophthalmic Assistants, 3 Schools at Ahmedabad, Surat and Navasari were started in the year 1981. By the year 1988, 366 students were trained to work as Ophthalmic Assistants and were awarded Diploma certificates. Out of these 288 persons were appointed as Ophthalmic Assistants in PHCs as well as district hospitals. As the state could not provide service to all the persons who obtained Diploma certificates, the 3 training schools were closed in the year 1988. At present 278 Ophthalmic Assistants are working at PHCs, CHCs and district hospitals.

Gujarat also started in-service training for 2 weeks programme for Ophthalmic Assistants and 1 week programme of Ophthalmic surgeons at the medical colleges during 1991. So far 278 Ophthalmic Assistants and 23 Ophthalmic Surgeons have taken in-service training during last two years.

The progress of the NPCB activities is shown in ANNEXURE -1, while the expenditure incurred under NPCB is shown in ANNEXURE-2. The progress of cataract operation is shown in ANNEXURE-3.

5 PREVALENCE OF BLINDNESS

Number of studies and surveys have been undertaken to highlight the magnitude of the problem of blindness in India - important being the Sub-committee on blindness (1942) the Health and Development Committee (1944) - popularly known as Bhore Committee, the studies by the Trachoma Control Pilot Project ICMR in (1956-63), the multicenteric survey sponsored by ICMR in (1971-74) and the National Sample Survery Organisation, NSSO in (1981).

The sub-committee on Blindness (1942) and the Health and Development Committee (1944) pointed out that Trachoma is one of the major preventable cuase of blindness in India. Multicenteric study ICMR

(1971-74) revealed high magnitude of preventable blindness particularly due to Cataract, which prompted launching of National Programme for the Conrol of Blindness in 1976. The Latest survey on blindness in India (1986-89) conducted by governemnt of India with the help of WHO revealved 1.49% prevalence rate of blindeness in India and 1.44% in Gujarat and suggested measures in the programme, so as to achieve reduction in blindness to 0.3 percent, under Health For All by 2000 AD strategy.

6 SURVEY

6.1 Objective of the Survey

The objective of the survey is to assess the prevalence of blindness in Gujarat and to know the reasons for blindness. State wide Survey was conducted in Gujarat during July to October, 1992. Details of the design of survey, persons involved and its reuslts are presented below :

6.2 Study Design

Villages and urban blocks were selected from already available sample units of Sample Registration System. In Gujarat under this scheme 200 rural units and 100 urban units have been selected. Out of these 100 units from rural areas and 50 units from urban areas were selected randomly. In rural areas every 5th household i.e. 20% of the household were selected for the survery from the household schedule already available with the Enumerator at the unit level. Similarly every 3rd house hold were selected from each of the selected urban units for survery to arrive at 34% of urban population and 66% of rural population as per 1991 census. Each investigator was given a random number to start the survey in the unit.

6.3 Schedule

A Schedule was prepared in consultation with the Additional Director (Vital Statistics), Joint Director (Ophthalmic) and Director, Regional

Ophthalmic Institute. Field testing of the schedule was done by the Additional Director (VS), Jt. Director (Ophthalmic) and one of the District Ophthalmic surgeon and after field testing the schedule was finalised.

The schedule have been devided into 2 parts. Part-1 includes identification of household and household information, while Part-2 includes information on each individual member of the household regarding age, sex, marital status, education, visual acquity, ocular morbidity etc. Coding for each of the coulmn was provided in the schedule itself to aviod mistakes by the investigator.

6.4 Training to Investigtors

Ophthalmic Surgeons, who are Programme Officers of NPCB and Ophthalmic Assistants at the PHC level conducted the survey. They were given one day training in detail by the Additional Director (Vital Statistics) and Joint Director (Ophtalmic) at six regional places in the State. During the training, investigators were briefed in detail regarding the objectives of the survery, measuring the visual acuity and how to elicit information. During the training it was emphasised that the success of the survey will depend on the team of Investigators and hence they should be very particular on all the aspects of the survey, Details of each column in the schedule were explained and they were senesitised about the importance of accuracy in collection of data.

6.5 Conduct of Survey

A team of Ophthalmic Assistants carried out ocular, visual examination as well as visual acuity examination of all the individuals and filled in the findings in the schedule under the supervision of Ophthalmic Surgeon. The team was provided with following materials.

1 20 feet string to place the vision chart.
2 Torch
3 Vision chart
4 Tonometer
5 Xylocane 2%
6 Pin hole, Trial frame & ocluder
7 Ophthalmoscope
8 Cotton
9 Survery forms

Complicated cases were drawn separately by the Ophthalmic Assistant for detailed examination by the Ophthalmic Surgeon. During the period of the survey, Ophthalmic Surgeon visited each and every selected unit in their jurisdicition at least once or twice for detailed checking of complicated cases, checking and cross checking the findings of the Ophthalmic Assistants.

In addition to this the team also carried with them vitamin A capsules, Antibiotic eye drops and tubes for the needy persons. This helped the team in getting better co-operation of the community for the survey. Before 2 to 3 days of the conduct of the survey in a sample unit, the Ophthalmic Assistant visited the unit and met the Sarpanch, Teachers, Talati-cum-Mantri, Multipurpose Health Workers and made them aware of the survey. He also made the announcement in the sample unit that the eye specialist with the team will visit the village on a fixed date and carry out the eye check-up. This helped in getting more than 90 percent response rate.

During survey the team (Ophthalmic Surgeon and Ophthalmic Assistant) were provided with vehicle so that they can complete the survey work in schedule time period as well as it will facilitate the supervision by Ophthalmic surgeon. Help of CDHO and DHO was taken in this survey work. ANM and Multipurpose workers of the village were also involved during the survey work, which facilitate the approach to the village people.

7. RESULTS

Definition and Classification

Blindness has been defined as having visual acuity in the better eye with correction less than 6/60 to no PL.

For children below 6 years, it is not possible to measure visual acuity but blindness as defined above have been measured for these children. Hence blindness rate has been calculated considering the entire population under survery.

A total of 40,734 persons were surveyed for blindness and other ocular morbidity.

7.1 Demographic Characteristics of Population Surveyed

The various demographic indicators are presentd in Table 1.

7.2 Blindness

Out of 40,734 population surveyed 2,242 i.e. 5.5% were either absent or refused for eye examination. Thus 38,492 persons were examined for blindness.

7.2.1 Prevalence of Bilateral, Unilateral blindness and Total blind eyes

Blindness is more serious sequel ocular diseases and imposes significant economic and social burden on a affected individual and communities. Prevalence rate of bilateral and unilateral blindness by sex, rural/urban, religion and caste is shown in Table-2.

Table - 1 Demographic Indicators

	Characteristic	Number	Percentage
Total Population Surveyed		40,734	0.18
1.	**Sex**		
	1.1 Male	21,146	51.9
	1.2 Female	19,588	48.1
2.	**Area**		
	2.1 Rural population	27,290	67.0
	2.2 Urban population	13,444	33.0
3.	**Caste**		
	3.1 Schedule Caste (SC) & Schedule Tribe (ST)	7,866	19.3
	3.2 Other backward class (OBC)	13,339	32.8
	3.3 Others	19,529	47.9
4.	**Religion**		
	4.1 Hindu	35,279	86.7
	4.2 Muslim	4,764	11.7
	4.3 Others	691	1.6
5.	**Age group**		
	5.1 0-6	4,984	12.2
	5.2 6-30	21,579	53.0
	5.3 31-60	11,875	29.1
	5.4 60+	2,296	5.6

Table-2 Prevalence Of Bilateral And Unilateral Blindnes By Sex, Rural, Urban, Religion And Caste, Gujarat 1992

Characteristics		Prevalence rate	
		Bilateral	unilateral
1	Total	1.16	1.67
2	Sex		
	2.1 Male	0.93	1.61
	2.2 Female	1.42	1.73
	Difference	0.49*	0.12
3	Rural/urban		
	3.1 Rural	1.31	1.81
	3.2 Urban	0.88	1.39
	Difference	0.43*	0.42*
4	Rligion		
	4.1 Hindu	1.20	1.72
	4.2 Muslim	0.89	1.28
	Difference	0.31	0.44*
5	Caste		
	5.1 Schedule Caste (SC) & Schedule Tribe (ST)	1.46	1.64
	5.2 Other backward Class (OBC)	1.10	1.47
	5.3 Others	1.10	1.81
	Difference	*	

* Statistically Significant.

The prevalence of blindness was 1.16% (95% confidence interval 1.07 - 1.27%).

During 1986-89 survey, prevalence rate of blindness of 1.44% was reported in Gujarat. Thus, there is a significant reduction of 0.28 percentage points in blindness in about five year period in Gujarat.

A total of 642 persons reported blind in one eye during current survey, out of which 335 persons had only right eye blind and 307 had only left eye blind. Thus, about 52% have only right eye blind, while 48% only left eye blind.

Prevalence of unilateral blindness is 1.67% (95% confidence interval 1.54 - 1.80%) during current survey. Significant increase in prevalence rate of unilateral blindness has been observed in current survey as compared to 0.84% reported prevalence rate of unilateral blindness during 1986-89 survey.

Bilateral blindness has shown decline, while unilateral blindness has shown increase in prevalence rate during last five years. This indicates that more persons with both eye blind would have been operated for cataract in one eye, as compared to person blind with one eye only, resulting in increase in unilateral blindness. The rise in unilateral blindness can be partly attributed to population increase and rise in the life expectancy as cataract which is the leading cause for the blindness is closely associated with ageing.

Further, a total of 1538 eyes were found blind out of 76,984 eyes checked indicating prevalence rate of total blind eyes at a level of 2.0% (95% confidence interval of 1.90 - 2.10%). The 1986-89 survey reported prevalence rate of total blind eyes as 1.86%. Thus, no reduction has been observed in prevalence rate of total blind eyes during last five year period, because of increase in population and increase in life expectancy.

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7.2.2 Sex differential

Prevalence of bilateral blindness among females (1.42%) is higher than among males (0.93%) which is statistically significant. However, no significant difference in sexwise unilateral blindness has been observed. The prevalence rate of male and female unilateral blindness is 1.61% and 1.73% respectively.

7.2.3 Rural/Urban differential

Prevalence of bilateral blindness in rural areas (1.31%) is higher than urban areas (0.88%) which is statistically significant. Similarly, prevalence of unilateral blindness is significantly higher in rural ares (1.88%) than in urban areas (1.39%).

7.2.4 Caste differential

Prevalence of bilateral blindness is higher among schedule caste (SC) and schedule tribe (ST) persons (1.46%) compared to other backward class (OBC - 1.10%) and others (1.10%) which is statistically significant. However, no significant difference among castewise unilateral blindness has been observed. The prevalence rate of unilateral blindness among SC and ST population is 1.64% while among OBC it was 1.47%. Unilateral blindness among others was 1.81%.

7.2.5 Age differential

Table-3 persents prevalence of bilateral and unilateral blindness by age.

Table-3 Prevalence of bilateral and unilateral blindness by age, Gujarat, 1992.

Age	Prevalence rate	
	Bilateral	Unilateral
Under 6 years	0.02	0.06
6-30	0.06	0.29
31-60	1.30	2.49
60+	13.05	13.05
Total	1.16	1.67

Table-3 clearly indicates that both bilateral and unilateral blindness is closely associated with age, as age increases the prevalence of blindness increases.

7.2.6 Cause specific differential

Out of 448 persons, 372 (83.0%) had same cause specific blindness in both eyes while 152 persons (17%) had different cause specific blindness in two eyes. Table-4. shows the causes of bilateral, unilateral blindness and blind eyes.

Table-4 Causes of bilateral, unilateral blindness and total blind eyes Gujarat, 1992

	Causes	Percentage		
		Bilateral	Unilateral	Total eyes
1	Cataract	68.3	44.2	58.3
2	Refractive error	10.0	6.2	8.4
3	Glaucoma	3.8	3.6	3.7
4	Trachoma	1.6	0.8	1.2
5	Corneal opacity	5.7	12.8	8.6
6	Posterior segment	4.0	14.0	8.2
7	Injury	0.7	4.2	2.2
8	Others	5.9	14.2	9.4
	Total	100.0	100.0	100.0

In case of bilateral blindness, cataract is the leading cause accounting for 68.3% of the total cases. Refractive error is the second most common cause of blindness accounting for 10.0%. Corneal opacity (5.7%). Posterior segment (4.0%) and Glaucoma (3.8) together account for 14%, while trachoma, injury and other causes account for remainder.

The contribution of catract in bilateral blindness was 71.3% in 1986-89 survey, which has sligtly reduced to 68.3% during present survey (July-October, 1992).

7.2.7 Nature of cataract blindness

In cae of bilateral blindness immature cataract accounts for 52% of total cases followed by 43.7% of mature cataract cases. Hyper mature cataract accounts for 4.3% of total cases.

Table-5 Blindness cases by nature of cataract, Gujarat, 1992.

Nature of cataract	Percentage	
	Bilateral	Unilateral
Immature	52.0	41.0
Mature	43.7	53.6
Hyper Mature	4.3	5.4

In case of unilateral blindness, proportion of immature (41.0%) and mature (53.6%) cases is just reverse than the bilateral.

Bilateral and unilateral blindness due to cataract is closely associated with age. Mximum (39 to 43%) is among persons aged 70 and above followed by age group 60-69 (31.3%).Persons aged 50-59 contribute about 20% of blindness due to cataract. (Table-6)

Table-6 Percentage distribution of bilateral blineness due to cataract according to age, Gujarat 1992.

Age group	Percentage	
	Bilateral	Unilateral
Less than 40 years	0.8	2.8
40 - 49	4.1	7.0
50 - 59	21.1	19.8
60 - 69	31.0	31.3
70 and above	42.9	39.1

7.3 Status Of Visual Acuity

As observed earlier children below 6 years, were not examined for visual acuity, but were only checked for blindness. A total of 33,508 persons aged 6 years and above were examined for visual acuity.

7.3.1 Normal Vision

Vision 6/6 in better eye has been termed as Normal Vision. The prevalence of normal vision is 86.2%. The prevalence of normal vision among males and females is 87.7 and 84.6 percent respectively. Prevalence of normal vision decreases as age increases (Table-7).

Table-7 Prevalence of normal vision (6/6) by age, Gujarat 1992.

Age group	Percentage
6 - 30	98.04
31 - 60	78.69
60+	16.08
Total	86.2

The prevalence of normal vision is 98% in age group 6-30 years followed by 78.7% in the age group 31-60. The prevalence of normal vision among 60 years and above is significantly lower (16.08%).

7.3.2 Satisfactory vision

Vision 6/9 to 6/18 in better eye has been termed as satisfactory vision. The prevalence of satisfactory vision is 8.69% during current survey. The prevalence of satisctory vision among males and females is 8.14 and 9.25 percent respectively. The prevalence of satisfactory vision is also closely associated with age as indicated in Table-8 below :

Table-8 **Prevalence of Satisfactory vision (6/9 to 6/18) by age, Gujarat, 1992.**

Age group	Percentage
6 - 30	1.75
31 - 60	15.76
60+	35.68
Total	8.68

7.3.3 Impaired Vision

Vision 6/24 to 6/60 in better eye has been termed as impaired vision. The prevalence of visual impairement is 3.78% during current survey. The prevlence of visual impairment among females (4.5%) is one and half times prevalence among males (3.1%). The prevalence of visual impairement is significantly higher among females than males. Prevalence of visual impairment increases with age as indicated in Table-9 below :

Table-9 **Prevalence of visual impairment by age Gujarat, 1992**

Age group	Percentage
6 - 30	0.14
31 - 60	4.25
60+	35.03
Total	3.78

7.4 General Ocular Morbidity (Eyes)

A total of 8929 persons reported to have one or the other ocular morbidity during the current survey. Thus, the prevalence of general ocular morbidity (eyes) works out to be 23.2% against 27.91% general ocular morbidity in 1986-89 survey. The following Table-10 shows the prevalence of general ocular morbidity and percentage distribution by specific causes during current survey.

Table-10 Prevalence and percentage distribution of general ocular morbidity, Gujarat 1992.

Causes	Prevalence (%)	Percentage distribution (eyes)
Refractive error	10.84	46.7
Cataract	8.04	34.3
Trachoma	5.30	22.8
Vit. A. deficiency	1.65	7.1
Corneal opacity	0.43	1.9
Glaucoma	0.27	1.2
Others	0.56	2.7

7.5 Treatment

Out of 8926 persons who reported one or the other kind of ocular morbidity, 3240 i.e. 36.3 percent had taken the treatment while 5688 i.e. 63.7 percent had not taken any kind of treatment. Out of those who had taken treatment 58.0 percent were wearing glasses. One fifth of them had availed medical treatment, while another one fifth had undergone surgical operations (Table-11)

Table-11 Type of treatment taken, Gujarat, 1992

Treatment taken	Percentage
1. Glasses	58.0
2. Medicine	20.0
3. Surgical operations	20.6
4. Others	1.2

Those who had not taken treatment 37.1 percent were not at all aware of the disease. This focuses on the need for arranging diagnostic camps particularly in rural areas. More than 50 percent (56.7%) reported that

they do not care for the treatment. High proportion of person reported "does not care for treatment" indicates that health education component should be sufficiently strengthened to educte people to avail the treatment. Only about 4 per cent reported that "family cannot afford" and only one per cent stated that "nearby facility for treatment is not available (within 30 Kms)" (Table-12). The percentage of "family cannot afford" seems to be on a lower side and it is quite possible that instead they would have reported "does not care for treatment".

Table-12 Reasons for not taking treatment, Gujarat, 1992.

	Reasons	Percentage
1	Not aware of disease	37.1
2	Nearby facility for treatment is not available (within 30 Kms)	1.0
3	Does not care for treament	56.7
4	Superstitious	1.3
5	Family cannot afford	3.9

8. MAGNITUDE OF BLINDNESS AND OCULAR MORBIDITY

Details are shown in Annexure 5,6,7,8,. In Gujarat at present as on 1-4-1994 there are 5 lakh persons blind with both eyes and out of this 68% are due to cataract. Hence, in Gujarat there is a backlog of about 3.4 lakh blind persons having cataract. It is estimated that in Gujarat there is an addition of 1 lakh cataract cases every year.

Blindness is most significant economic and social burden on affected individual and society. It is therefore very essential to priorities NPCB as under :

(i) To concentrate on operating bilteral blind persons particularly due to cataract.

(ii) To concentrate on Unilateral blindness due to cataract and other causes of bilateral and unilateral blindness due to trachoma, corneal opacity, preventive and curable posterior segment disease and refractive error.

Special attention should be paid to operate atleast 1 cataract eye in 3.4 lakhs persons in bilteral blindness and for long term impact, emphasis should be given to persons in the age group below 70 years. However, one cannot reject any person coming for cataract operation.

At present 1.0 to 1.5 lakhs cataract operations are being performed every year since last three years. Thus for Gujarat it is not difficult to control blindness within 3-5 years by setting priorities and increasing efforts to perform 2.5 lakh cataract operations every year. This would require to increase the inputs in terms of infrastructure facilities as well as strengthening health education component to educate the community particularly SC and ST in rural areas where prevalence rates are significantly higher.

It is therefore strongly reommended that in rural areas, house to house "vision screening" campaign in search of blindness should be conducted and the year 1995 should be declared as "campaing year" for identification of blind persons particularly in rural areas. This should be carried out by MPWs by preparing list of such persons. This list should be handed over to Ophthalmic Assistants for confirming correct diagnosis and to prepare final list of blind persons.

In addition to this, it is also recommended that detailed information on unilateral, bilateral, sex and age for cataract operation should be collected in the monthly report and should be regularly monitored every month.

In Gujarat, about 40 percent of the work load are being performed by NGOs. It is therefore, very essential that in the meeting of NGOs, particularly of rural base they should be further encourage to set priorities as discussed in above paras.

Frequent meeting with N.G.Os may be held for discussion and solving their problems, to coordinate, motivate and encourage them for further active participation in eye camp approach.

9 RECOMMENDATIONS

1 In Rural areas diagnostic camps should be arranged regularly.

2 Health education component should be specifically strengthened to educate people to avail treatment.

3 Control of blindness programme should be prioritised as under :

(i) To concentrate on operating bilateral blind persons particularly due to cataract.

(ii) To concentrate on unilateral blindness due to cataract and other causes of bilateral and unilateral blindness due to trachoma, corneal opcity, preventive and curable posterior segment disease and refractive error.

4 In rural areas house to house "vision screening" campaign in search of blindness should be conducted.

5 In meeting of NGOs, particularly rural base it should be emphasised to set priorities and built-in coordination should be developed between NGOs and Government to accelerate pace of performance.

6 The State Blindness control society should be constituted for getting more financial support from the public for effective implementation of NPCB.

REFERENCES

(1) WHO (1984) Strategies for the prevention of blindness in national programme.

(2) Ophthalmology section, Directorate General of Health Serices, Ministry of Health & Family Welfare Government of India, New-Delhi-110011, "PRESENT STATUS OF NATIONAL PROGRAMME FOR CONTROL OF BLINDNESS (NPCB), 1992.

ANNEXURE - 1

STATEMENT INDICATING THE SERVICES SANCTIONED BY GOVERNMENT OF INDIA AND SERVICES DEVELOPED BY STATE GOVERNMENT UNDER N.P.C.B.

		1985-86		1986-87		1987-88		1988-89		1989-90		1990-91		1991-92		1992-93		1993-94	
		sanctioned by GOI	Developed by GOG	sanctioned by GOI	Developed by GOG	sanctioned by GOI	Developed by GOG	sanctioned by GOI	Developed by GOG	sanctioned by GOI	Developed by GOG	sanctioned by GOI	Developed by GOG	sanctioned by GOI	Developed by GOG	sanctioned by GOI	Developed by GOG	sanctioned by GOI	Developed by GOG
1	P.H.C.	50	0	0	0	0	0	0	0	0	0	0	0	0	0	10	0	25	0
2	D.M.Us	0	0	2	0	1	0	1	1	0	0	2	0	2	2	3	3	1	1
3	Medical Colleges	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4	Dist. Hospt.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5	Eye Banks	0	0	1	0	3	0	0	0	1	0	1	0	0	0	0	0	0	0
6	Addl. input to Dist.	0	0	0	0	0	0	0	0	0	0	0	0	3	3	3	3	0	0
7	Replacement of vehicle at CMUS.	0	0	0	0	0	0	0	0	0	0	0	0	2	2	0	0	4	4

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35-
1992
21
COMMUNITY HEALTH CELL
LIBRARY AND DOCUMENTATION UNIT

ANNEXURE-2

Details of expenditure incurred under NPCB Gujarat

Year	Central Assistance	Total Expenditure
	(Rs. in lakhs)	(Rs. in lakhs)
1985-86	59.06	116.57
1986-87	27.47	111.52
1987-88	15.08	190.27
1988-89	18.44	189.71
1989-90	19.64	194.02
1990-91	24.32	202.14
1991-92	51.70	248.95
1992-93	121.45	388.31
1993-94	88.53	309.79

ANNEXURE - 3

Cataract Performance, Gujarat

Year	Target	Acheivement	Percentage
1984-85	70,000	86,917	124.16
1985-86	70,000	72,691	103.84
1986-87	70,000	74,345	106.20
1987-88	70,000	75,958	108.51
1988-89	77,000	83,424	108.34
1989-90	77,000	93,793	121.80
1990-91	77,000	94,001	122.07
1991-92	1,10,000	1,12,239	102.03
1992-93	1,22,000	1,24,898	102.37
1993-94	1,40,000	1,53,255	109.46

ANNEXURE - 4

Magnitude of blindness and ocular morbidity in Gujarat, 1992

1. Estimated population 435 lakhs
   as on 1st April, 1994

2.	**Indicators**	**Prevalance (%) (1992 survey)**	**In lakhs**	
(i)	Bilateral blind persons.	1.16	5.05	(persons)
(ii)	Unilateral blind persons.	1.67	7.26	(Persons)
(iii)	Total blind eyes	2.00	17.40	(eyes)
(iv)	Disease distribution in total blind eyes.			
	(a) Cataract	58.3	10.14	
	(b) Refractive error	8.4	1.46	
	(c) Glaucoma	3.7	0.64	
	(d) Trachoma	1.2	0.21	
	(e) Corneal opacity	8.6	1.50	
(v)	General ocular morbidity.		(Persons)	
	(a) Refractive error	10.84	47.15	
	(b) Cataract	8.04	34.97	
	(c) Trachoma	5.30	23.05	
	(d) Glaucoma	0.27	1.17	
	(e) Vit. A. deficiency	1.65	7.18	

ANNEXURE - 5

Magnitude of blindness due to cataract by age, Gujarat, 1992

Age group	percentage	Persons in lakhs
Below 40	0.8	0.03
40-49	4.1	0.14
50-59	21.2	0.73
60-69	31.0	1.07
70+	42.9	1.47
Total	100.0	3.44

ANNEXURE - 6

TARGETS FOR COMPLETING BACKLOG OF 3.4 LAKH BLIND PERSONS DUE TO CATARACT IN GUJARAT

(i) To increase the performance of cataract operations to a level of 2.5 lakh every year from the present level of 1.5 lakh.

(ii) Assuming that 70% cataract operations will be performed on blind perosns with both eyes, the effective cataract operations for completing the backlog will be 1.75 lakhs.

(iii) If above targets are achieved every year starting from 1st April, 1994, then it is possible to complete the backlog by 31st December, 1998 as shown below :

year	Standing backlog	New Cases Target	Effective Performance	backlog at the end of the year
(1)	(2)	(3)	(4)	(5)	(6)
1994-95	3.40	1.00	2.4	1.65	2.75
1995-96	2.75	1.00	2.5	1.75	2.00
1996-97	2.00	1.00	2.5	1.75	1.25
1997-98	1.25	1.00	2.5	1.75	0.50
1998-99	0.50	1.00	2.5	1.75	– 0.25

The above figures indicate that if targetted 2.5 lakh cataract opertions are performed every year in Gujarat, it is possible to complete the backlog of 3.40 lakh catarct operations within next five years i.e. by December, 1998.

ANNEXURE - 7

PROVISION OF ANTIBIOTIC TUBES FOR TRACHOMA CONTROL

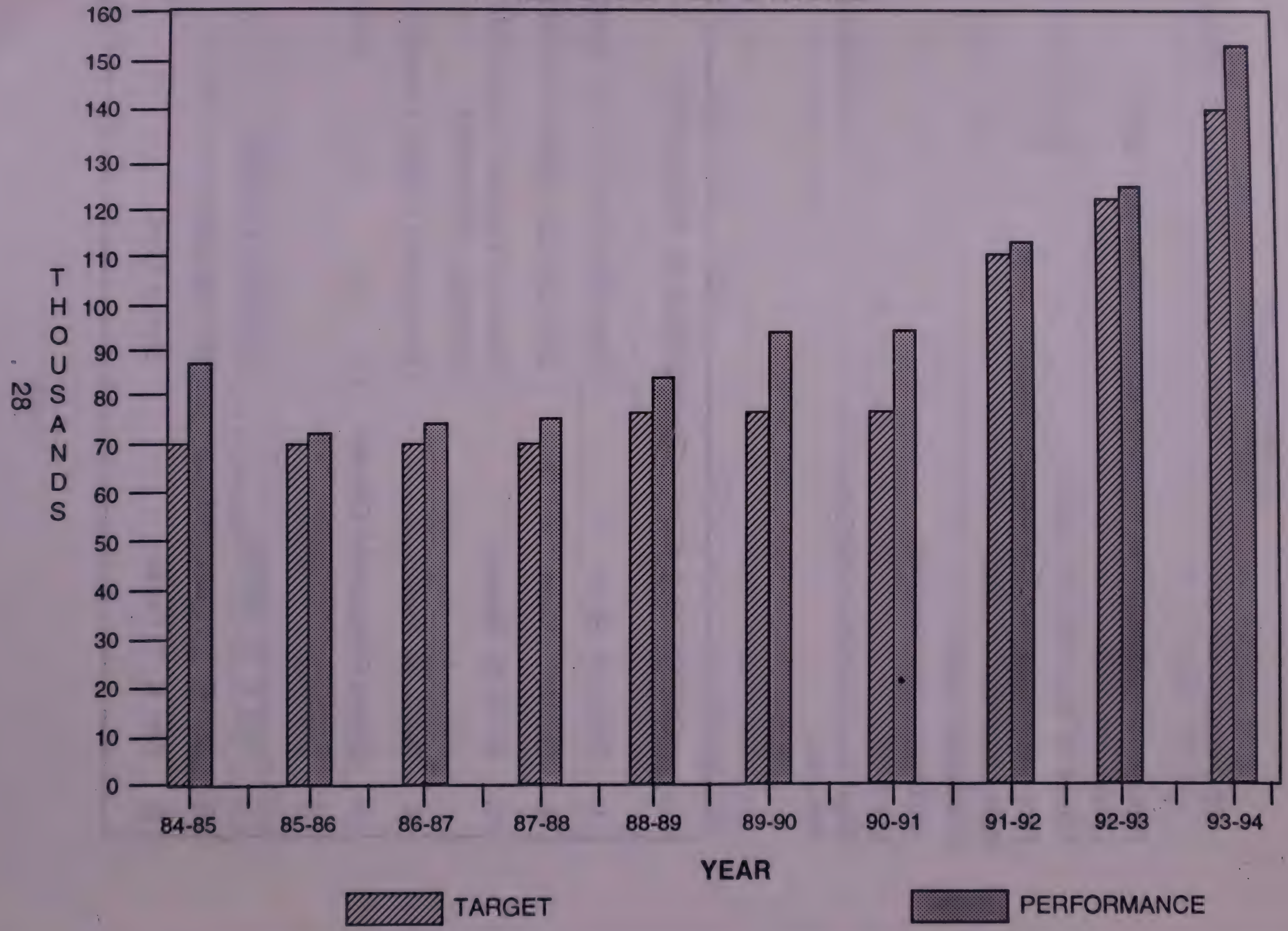
Prevalence of Trachoma Ocular morbidity	5.3%
Cases of Trachoma in Gujarat	23.05 lakhs
Proportion of Active Trachoma in Gujarat	80.6%
Estimated No. of Active Trachoma cases	18.58 lakhs
Antibiotic tubes required per case.	6
Total No. of antibiotic tubess required.	111.47 lakhs

OFFICERS & STAFF ASSOCIATED IN THE SURVEY

1.	Dr. M. H. Shah	Additional Director (V.S) Retired
2.	Dr. M. Y. Khan	Joint Director (Ophthalmic cell)
3.	Dr. S. K. Narang	Director, Regional Ophthalmic Institute, Ahmedabad.
4.	Dr. C. N. Parikh	Programme Officer, Bharuch.
5.	Distric Programme Officers	
6.	Ophthalmic Assistants	
7.	Shri V. D. Rathod	Statistical Assistant
8.	Shri P. Sivaramakrishnan	Stenographer
9.	Shri K. T. Parikh	Senior Clerk

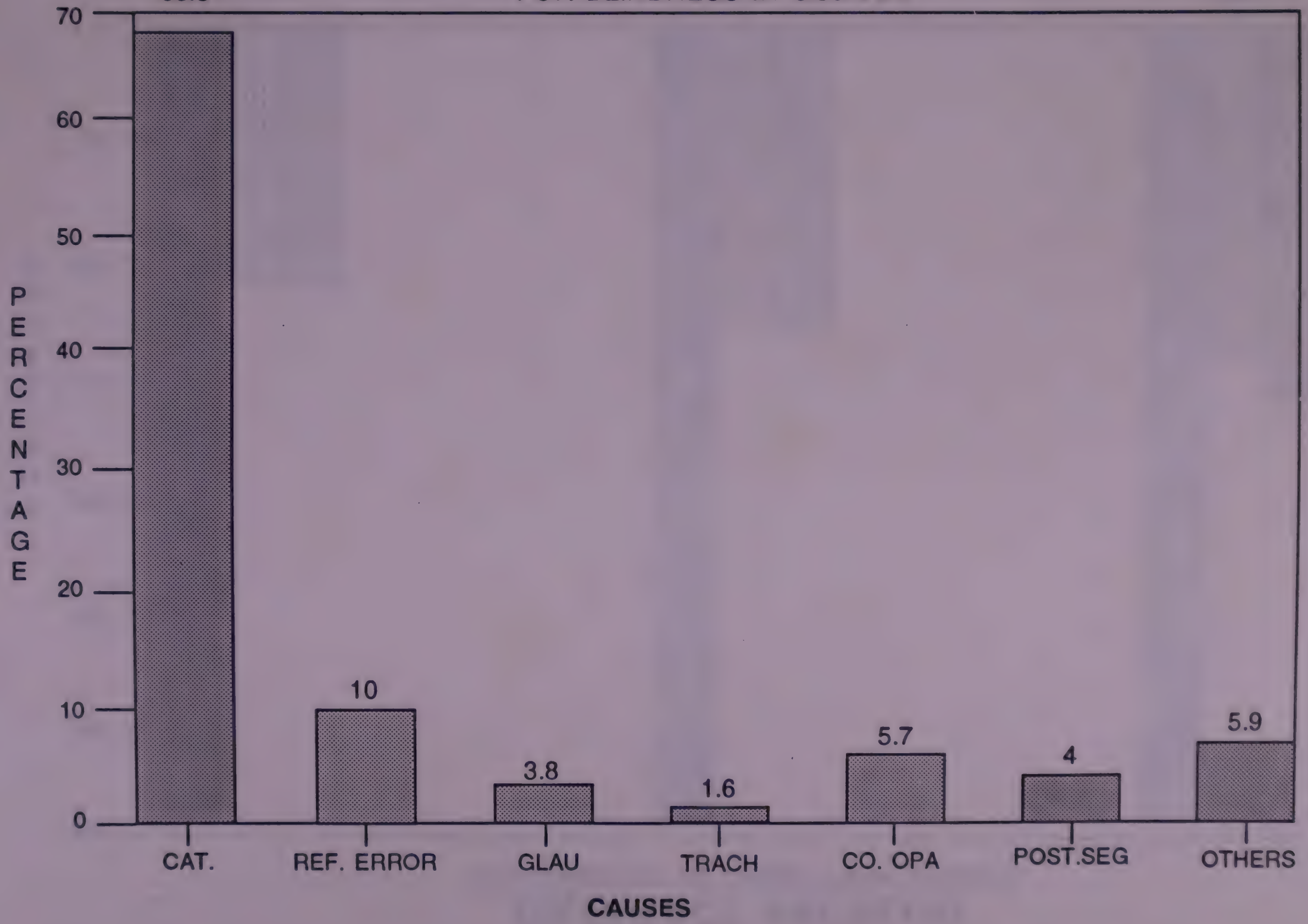
CATARACT SURGERY IN GUJARAT

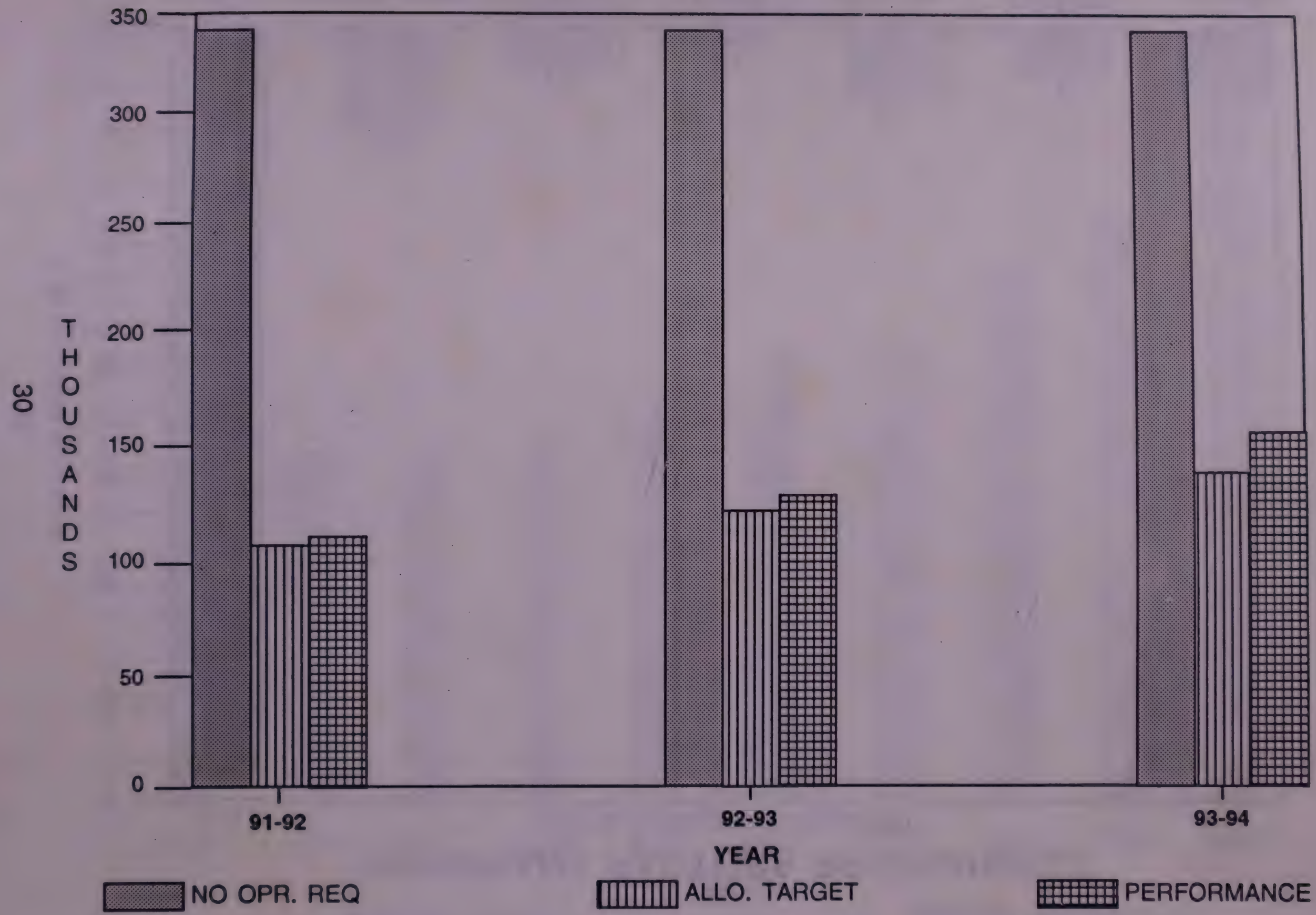
TARGETS AND PERFORMANCE



IMPORTANT FACTORS RESPONSIBLE

FOR BLINDNESS IN GUJARAT



CATARACT BACKLOG

REQUIREMENTS VS TARGET/PERFORMANCE